DEPARTMENT OF THE AIR FORCE
HQ AIR INTELLIGENCE AGENCY

AIR INTELLIGENCE AGENCY INSTRUCTION 33-104
5 April 1999

Communications and Information

PLANNING AND IMPLEMENTATION

COMPLIANCE WITH THIS INSTRUCTION IS MANDATORY

This Air Intelligence Agency Instruction (AIAI) implements Air Force Instructions 33-104, *Base-Level Planning and Implementation*, AFI 32-1031, *Operations Management*, AFI 32-1032, *Planning and Programming Real Priority Maintenance, Projects Using Appropriated Funds (APF*). This instruction provides guidance to activities requiring Mobile, Engineering, Alteration, and Repair (MEAR) and Engineering and Installation (E-I) services from 668th Logistics Squadron (668 LS). It outlines standardized management, planning, and implementation practices of MEAR and E-I projects. It also defines requesting unit responsibilities in support of project implementation. The 668 LS is a direct reporting unit under HQ Air Intelligence Agency (HQ AIA) Directorate of Logistics (LG), and is responsible for providing Mobile, Engineering, Alteration, and Repair (MEAR) and Engineering and Installation (E-I) support to AIA headquarters, its field units, the National Security Agency (NSA) and other customers. This instruction does not apply to AIA gained Air National Guard and Air Force Reserve units.

Paragraph

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CHAPTER 1

GENERAL INFORMATION

1.1. Applicability and Scope:

1.1.1. Applicability. This instruction applies to personnel in AIA planning and implementation functions supporting 668 LS, Mobile, Engineering, Alteration, and Repair (MEAR) and Engineering and Installation (E-I) requirements, and to those who require MEAR or E-I mission facility support.

1.1.2. Scope. This instruction provides the customers with an explanation of the project management process used to implement facility renovation and or installation of communication hardware support equipment. It also provides the customer with information and responsibilities they may have during project implementation.

1.2. Environmental Impact Analysis:

1.2.1. AIA MEAR, E-I, Contractor, and self-help actions that generate a requirement for an AF Form 332, **Base Civil Engineering Work Request** will be accompanied by an approved AF Form 813, **Request For Environmental Impact Analysis,** before work begins according to AFI 32-7061**,** *Environmental Impact Analysis Process.*

1.2.2. AIA E-I or Contractor actions not requiring processing of an AF Form 332, but involve drilling or cutting holes into or through walls, ceilings, floors, or trenching and digging require the processing of an AF Form 103. (See attachment 3 for sample format). The AIA unit requesting the proposed action will process the AF Form 103 prior to the start of work according to AFI 32-1031, *Operations Management*. If delays are encountered or the conditions at the job site change, the form must be revalidated and approved. AIA units should be aware that processing an AF Form 103 might generate the need for an AF Form 813 depending upon host base policy.

1.2.3. Coordination responsibility of any AF Form 103, 813, or 332 identified in an engineering survey must be included in the appropriate attachments of the Facility Engineering Package and Facility Installation Scheme's Project Support Agreement. Identify specific locations and areas where proposed work will take place. Customers must ensure that areas identified in the PSA are cleared of any environmental hazards before work can begin.

1.2.4. AIA Project Engineers, Engineering Technicians, Project Managers, MEAR, and E-I Team Chiefs will ensure that areas identified as containing possible environmental health hazards have been cleared or reduced to permissible exposure limits (as defined by Air Force Occupational Safety and Health (AFOSH) Standards) before work begins.

1.2.5. AIA Project Engineers, Engineering Technicians, Project Managers, Quality Assurance evaluators, MEAR, and E-I Team Chiefs must be trained to recognize actions that may have a significant environmental impact. Contact the host Base Civil Engineer or Environmental Manager for assistance.

1.3. Authorization. HQ AIA Maintenance Manpower Management System/Position Equipment Table (M3S/PET) database is the authoritative document for all mission-facility actions for Mission Facility Projects (MFP). The AIA Corporate Board, along with an approved AF Form 813, AF Form 332, and DD Form 1391, **Military Construction Project Data**, (as required), constitutes authority for initiating MEAR projects.

1.3.1. The 668 LS Project Management will have authority over the following:

1.3.1.1. Self-help Mission Facility Projects.

1.3.1.2. Relocation of mission systems.

1.3.1.3. Facility alteration or renovations under $15K.

CHAPTER 2

REQUIREMENTS PROCESSING

2.1. Services Provided. The 668 LS provides the following Command, Control, Communications, Computer, and Intelligence (C4I) and facility renovation services to AIA field units performing Signal Intelligence (SIGINT) missions that are funded under the Consolidated Cryptologic Program (CCP), and to Non-Consolidated Cryptologic Program (Non-CCP) funded AIA organizations on a fee for service basis:

2.1.1. Facility engineering analysis and evaluations.

2.1.2. Facility Engineering Package and Facility Installation Scheme development.

2.1.3. Plant In-Place Records (PIPRs) development and maintenance, and Engineering Installation Standards development.

2.1.4. Renovation/repair of facilities, and installation of communications hardware and support equipment.

NOTE: Generally, any MEAR or E-I work performed by the 668 LS, will require approximately 6 months lead-time to develop the Facility Engineering Package or Facility Installation Scheme, order materials, and schedule team deployment.

2.2. Reports. Progress reports are generated from the Workload on the Web (WOW) to inform customers at all levels within the agency of Mission Facility Project status, and the progress of 668 LS tasked projects. The WOW is the implementation tracking database to assist internal and external customers with costs, schedules, and performances of all projects. Local customers may gain access through the classified Banyan network via the 668 LS Web page. External customers may gain access through the classified AIA Web interface (Read Only version). The WOW is updated as requirements are generated with current status of each requirement monthly.

2.3. Processing Requirement Requests:

2.3.1. **AIA Facility Requirements.** AIA facility requirements will be processed through the Office of the Civil Engineer (HQ AIA/XRC) for funding consideration, prioritization, and method of execution. Once assigned to 668 LS for execution, the project management office will contact the requesting unit to work project implementation details.

2.3.2. **MEAR Customer Requirements.** For customer funded requirements, submit an approved AF Form 332, AF Form 813, and a DD Form 1391 as required, to 668 LS Project Management. An approved funding document is also required.

2.3.3. **AIA Communication-Computer System Requirements.** AIA Communication-Computer System requirements are processed on locally coordinated and approved requirement documents, for example, AF Form 3215, message, or memo.

2.3.4. **Non-CCP Funded Requirements.** Customers must prepare their communication-computer system requirement as outlined in para 2.3.3 above, and provide the appropriate funding documentation.

2.3.5. **Local AIA Campus (Security Hill) Requirements.** Local AIA campus requirements are processed through 690 CSS via requirements document, for example, AF Form 3215, message, or memo.

CHAPTER 3

DEVELOPMENT AND IMPLEMENTATION

3.1. Project Management Concepts. The objective of project management is to provide the user with those systems or facilities required to satisfy a documented requirement within cost and scheduled timelines. Project management activities include:

3.1.1. Estimation--Determine the tasks, resources, budget, and schedule.

3.1.2. Scheduling--Developing timelines and assign resources.

3.1.3. Tracking and control--Schedule installation, construction, and take corrective action if the project is delayed or is under or over budget.

3.2. Project Development. HQ AIA, Air Force Cryptologic Office (AFCO), 67th Intelligence Wing (67IW), NSA, 668 LS, and any combination of contractors may be responsible for project development. In many cases, this may only consist of 668 LS developing a FEP/FIS for site preparation before an outside agency actually installs a system or equipment. In this case, 668 LS identifies project requirements, prepares the FEP/FIS with any support agreements, and develops the List of Materials (LOM).

3.3. Project Management Responsibilities. Project management begins when a requiring agency submits a requirement document, and ends with the completion of the AF Form 1261, **Command, Control, Communications and Computer Systems Acceptance Certificate** or equivalent. A project manager will be assigned to develop and execute timelines, and serve as the focal point throughout the project planning and execution.

NOTE: Except for bonafide emergencies, ensure there are no unauthorized changes to the physical plant facility or equipment configuration, and no additions, deletions or alterations to a physical plant or components of any installed position without proper authority. Equipment or position configuration changes normally require a Resource Change Request through the M3S/PET system for modification proposals. Facility changes will be routed through normal Base Civil Engineering (BCE) channels.

3.4. Coordinating the Installation. After development of initial project timelines, all requirements will be forwarded to the engineering staff for development of engineering concepts and to conduct a survey of the proposed facility as required.

3.4.1. During the survey, the survey team, along with the appropriate customer representative, will discuss and prepare a Project Support Agreement (PSA) according to AFI 33-104 and this instruction. (See PSA format in attachment 2).

3.4.2. The PSA and its attachments define base and customer support requirements and the siting and project implementation data necessary to complete the project. The PSA must be coordinated and signed by the appropriate base and unit representatives, and the lead project engineer.

CHAPTER 4

IMPLEMENTING ACTIVITY RESPONSIBILITIES

4.1. General. 668 LS accepts and processes approved AF Form 3215, AF Form 332, message, or other documentation as required to satisfy AIA C4I and construction requirements (see para 2.3).

4.2. Project Management.

4.2.1. The implementing activity will:

4.2.1.1. Manage costs, develop schedules, and monitor performance of project implementation.

4.2.1.2. Distribute timeline memo/task authorization to appropriate offices.

4.2.1.3. Provide schedule information to appropriate offices.

4.2.1.4. Manage requirements identified in the PSA. (Note: A change in support requirement completion may affect the overall project completion date).

4.2.1.5. Confirm allied support requirements are complete or will be completed before the installation start date.

4.2.1.6. Release projects for installation/construction when support requirements are met.

4.2.1.7. Manage AF Form 1261 exceptions and schedule work for completion.

4.3. Project Development. Upon receipt of an approved tasking, 668 LS is authorized and directed to provide the following:

4.3.1. Project management, engineering development, and evaluations.

4.3.2. Blueprint designs, facility engineering, and scheme development packages, to include a List of Material (LOM).

4.3.3. Renovation and repair of facilities and installation of communication hardware support equipment, and team personnel necessary to satisfy the requirement.

4.4. Project Implementation.

4.4.1. The 668 LS will:

4.4.1.1. Review the M3S/PET database and other programming documents for new, accelerated, or deleted program actions and adjust schedules accordingly.

4.4.1.2. When appropriate, communicate directly with other agencies and operating units on installation and facility renovation and construction matters, and provide information copies of all direct communications to intermediate level headquarters and appropriate HQ AIA staff offices.

4.4.1.3. Maintain and operate a pre-fabrication facility to support the installation of Mission Facility Projects.

4.4.1.4. Budget for LOMs and bench stock items required for pre-fabrication, installations, TDY travel, and other operation and maintenance (O&M) requirements.

4.4.1.5. Maintain a stock of expendable items of installation hardware to support customer MEAR and E-I requirements.

4.4.1.6. Maintain a stock of expendable items of installation hardware at forward supply points to support emergency requirements and deployed installation teams.

4.4.1.7. Perform site surveys, as required to ensure preparation of Facility Engineering Package (FEP) or Facility Installation Scheme (FIS), per implementing directive.

4.4.1.8. Prepare FEP/FIS or task order for each installation or project.

4.4.1.9. Include in the FEP/FIS the following:

4.4.1.9.1. A brief description of the installation or work to be performed, and any special instructions to the installer.

4.4.1.9.2. A complete LOM to be installed.

4.4.1.9.3. Installation tasks to be performed or scope of work.

4.4.1.9.4. Instructions, to the installer, to complete the task.

4.4.1.9.5. Complete list(s) of applicable references and drawings, or CE construction standards.

4.4.1.9.6. Complete set of Installation drawings or construction blueprints depicting the installation.

4.4.1.9.7. Test procedures and parameters.

NOTE: When appropriate, forward FEP/FIS to the requesting operating unit at least 45 days prior to the installation start date.

4.4.1.10. Publish guidance to standardize, prepare, maintain, and number PIPRs and as-built drawings.

4.4.1.11. Assign position numbers on PIPRs to identify mission equipment positions.

4.4.1.12. Keep the requesting activity advised of project status.

4.4.1.13. Report any changes to the requesting activity that could impact project development or implementation.

4.4.1.14. Receive Engineering Change Request Authorizations (ECRAs) to the FEP or FIS, and make necessary changes or amendments according to AFI 33-104, and attachment 4 of this instruction.

4.4.1.15. Review engineering design data, including changes, to see how they affect the project, and to make sure design drawings support desired project outcome.

NOTE: Add approved changes to scope of work for MEAR and E-I projects, and any possible known impact to the installation and construction schedule.

4.4.1.16. Ensure PSA preparation is according to Attachment 2 of this instruction. Coordinate and distribute the PSA between all participants.

4.4.1.17. Develop a quality assurance program to ensure compliance with all applicable standards and to assess the quality of installation and or construction work.

4.4.1.18. Identify quality deficiencies in the development phase of the installation or construction project.

4.4.1.19. Assign responsibility to obtain host nation approval, electrical safety certification, and connection approval when applicable.

4.4.1.20. Define logistics support needs.

4.4.1.21. Notify the BCE of real property structures according to AFI 32-9005, *Real Property Accountability, and Reporting.*

4.4.1.22. Assign AIA project numbers to units for self-help installation actions.

4.4.2. The Construction or Installation Team Chief will:

4.4.2.1. Coordinate base and unit support requirements for the installation teams.

4.4.2.2. Coordinate with the customer liaison representative upon arrival.

4.4.2.3. Be responsible for the on-site management of the installation or construction using all available resources to meet the scheduled completion date.

4.4.2.4. Coordinate (by message or telephone) with and receive guidance from 668 LS engineering on significant errors, corrections, or additions to FEP/FIS, and send info copy to 668 LS Project Management.

4.4.2.5. Submit change requests to the FIS on an AF Form 1146, *Engineering Change Request/Authorization*, either hard copy or message for all proposed deviations from FEP/FIS that affect equipment locations, configurations, power distribution, inter position wiring, or equipment operational capabilities.

4.4.2.5.1. Include the following information in ECR/A request:

4.4.2.5.1.1. Detailed layout of requested change.

4.4.2.5.1.2. Suggested solutions to correct discrepancy.

4.4.2.5.1.3. Identify expected materials required to implement the change.

4.4.2.6. Install and construct mission or communications-facility equipment or systems according to the applicable FEP/FIS.

NOTE: National, State and local building codes regulate construction standards. Building material and designs for room renovation will be according to these standards.

4.4.2.7. Monitor job progress, and prepare and transmit a weekly status report to appropriate offices at the 668 LS.

4.4.2.8. Notify local maintenance support and 668 LS Quality Assurance when installation is at 75 percent completion.

4.5. Post Implementation.

4.5.1. The Installation or Construction Team Chief will:

4.5.1.1. Annotate and update three copies of as-installed or as-built drawings according to chapter 6 of this instruction.

4.5.1.2. Test installed system or equipment according to FIS instructions and chapter 7 of this instruction.

4.5.1.3. Coordinate with the 668 LS Project Management for disposition instructions of LOM residue material.

4.6. Self-Help Requirements.

4.6.1. 668 LS will:

4.6.1.1. Accept self-help requests and acknowledge approval.

4.6.1.2. Provide project tracking number to request.

4.6.1.3. Process received LOM.

4.6.1.4. Provide LOM material or grant authority to use material in supply point.

CHAPTER 5

REQUIRING ACTIVITY RESPONSIBILITIES (USER)

5.1. General. Throughout project planning and implementation, the user will have responsibilities that may be critical to the successful completion of the project.

5.2. Project Management.

5.2.1. The requiring activity will:

5.2.1.1. Appoint a unit project monitor or Designated Engineer Representative to ensure that all support actions identified in the FEP/FIS and the PSA are completed before the team arrives.

5.2.1.2. Receipt for and acknowledge receipt of the LOM and prefabrication shipments according to chapter 8 of this instruction.

5.2.1.3. Designate a unit representative to accept responsibility for the team toolbox according to chapter 11 of this instruction.

5.2.1.4. Maintain appropriate 31-10 series Technical Orders and Equipment Installation Standard 2-1, for team use.

5.3. Project Development.

5.3.1. The requiring activity will:

5.3.1.1. Have the equipment custodian assume equipment accountability before the installation start date and release the equipment to the installation team chief when required.

5.3.1.2. Conduct incoming quality control inspections for serviceability, completeness, and modification compliance on each item of government furnished equipment received in support of a Mission Facility Project (MFP).

5.3.1.3. Correct equipment shortages and malfunctions before the installation team arrive. Exception: Only the installation team chief will open prefabrication and LOM shipping containers. Contractor provided material and equipment is exempt from incoming quality control inspections.

5.3.1.4. Report equipment shortages, inoperative equipment, and other problems impacting on the project to 668 LS Project Management.

5.3.1.5. Upon receipt of FEP/FIS, conduct a comprehensive project review for any apparent discrepancies in engineering, material, and implementation scheduling. The FEP/FIS review and acceptance must include O&M review and certification of any support confirmation according to the Project Support Agreement (PSA). If the FEP/FIS is not acceptable, submit an Engineering Change Request Authorization using AF Form 1146 to 668 LS Project Management within 10 workdays after receipt of the package. This is to ensure sufficient time for 668 LS to review recommendations and publish necessary changes to the FEP/FIS as required. See attachment 5 of this instruction for review checklist.

5.3.1.5.1. Include the following information in an ECRA request:

5.3.1.5.1.1. Detailed layout of requested change.

5.3.1.5.1.2. Suggested solutions to correct discrepancy.

5.3.1.5.1.3. Identify expected materials required to implement the change.

5.3.1.6. Confirm support actions identified in attachments 2 & 3 of the PSA, and notify 668 LS Project Management by message or memo as each task is completed.

5.3.1.7. Request all technical power circuit breaker assignments from 668 LS Engineering. Technical power will only be used for C4I equipment. Use utility power for all other applications.

5.4. Project Implementation.

5.4.1. The requiring activity will:

5.4.1.1. Provide logistical support to E-I and MEAR personnel.

5.4.1.2. Maintain and update PIPRs according to chapter 6.

5.4.1.3. Complete and process appropriate acceptance or completion documentation.

5.4.1.4. Arrange for disposal of removed equipment through HQ AIA/LGSW.

5.4.1.5. Notify 668 LS Project Management of emergency installations within 48 hours after work starts, or as soon as the emergency allows. Describe the emergency, equipment, and man-hours required.

5.4.1.6. Appoint an individual to act as liaison between the unit and the implementation team.

5.4.1.7. Provide support to the team, such as housing, messing, base engineering, photo service, transportation, and administrative support as required.

5.4.1.8. Ensure team integrity is maintained for billeting.

5.4.1.9. Ensure government transportation is available when possible. Advise 668 LS on the availability of government-owned vehicles for team transportation for the duration of the deployment.

5.4.1.10. Provide protection and storage of installation equipment, hardware, and tools during installation or work stoppage.

5.4.1.11. Coordinate downtime with installation team chief for the project.

5.5. Post Implementation.

5.5.1. The requiring activity will:

5.5.1.1. Perform acceptance inspections with the installation team and sign the appropriate documentation.

5.5.1.2. Correct unit designated exceptions listed on the AF Forms l261.

NOTE: 668 LS Project Management is responsible for ensuring exceptions on the AF Form 1261 are resolved through appropriate offices.

5.5.1.3. Verify the accuracy of installation records provided by the team chief by signing each copy of as-installed drawings provided. Maintain one copy on-site as interim as-installed PIPRs.

5.6. Self-Help Project. Coordinate self-help work with the 668 LS to avoid duplication of efforts or systems integration problems. Identify the project manager, project participants, source of funds, and authority for the project to 668 LS project management before work begins. Document and identify all tasks needed for project development and assign specific responsibilities for carrying out each task.

5.6.1. Use extreme caution in developing self-help projects to ensure that they are architecturally compatible and cost effective. Also, make sure to take into account how self-help projects will affect manpower, money, and materiel resources for the organization and maintenance of the C4I system.

5.6.2. Request permission for self-help installations through 668 LS Project Management via message, fax or other means.

5.6.3. 668 LS will acknowledge approval and provide a project tracking number.

5.6.4. Provide a LOM to 668 LS Project Management (when required).

5.6.5. Update as-installed PIPRs according to chapter 6 of this instruction.

CHAPTER 6

DRAWING DOCUMENTATION AND MAINTENANCE

6.1. Plant In-Place Records (PIPRs). PIPRs document current facility and communications layout within AIA units. PIPRs and count sheets are updated after changes are made to C4I systems and facilities. The 668 LS updates and maintains the Master Plant In-Place library for mission systems and equipment that are used to accomplish AIA SIGINT missions and are funded by NSA under the CCP at AIA field units.

6.1.1. PIPRs are divided into three categories:

6.1.1.1. PIPR Part I--Interposition Count Sheets

6.1.1.2. PIPR Part II--Mission Front Panel Layouts and Wiring Diagrams

6.1.1.3. PIPR Part III--Facility Drawings

6.1.1.3.1. PIPR Part III is an integral part of the PIPR and a copy is maintained at each AIA field unit. They may be supplemented as necessary to fully document as-installed facilities.

6.1.2. PIPR Review. 668 LS updates and maintains the Master Plant In-Place library for mission systems and equipment that are used to accomplish AIA SIGINT Missions and are funded by NSA under the CCP at AIA field units. Other record updates may be accomplished on a fee for service basis.

6.1.2.1. AIA field units will:

6.1.2.1.1. Ensure that a complete review of PIPRs is conducted semi-annually for accuracy. The scope of the review may be determined jointly between the unit and 668 LS. Forward any discrepancies or changes to 668 LS Engineering for corrections.

6.1.2.1.2. Appoint a PIPR manager in writing.

6.1.2.1.3. Maintain current copies of PIPRs, and a current index file.

6.1.2.2. The PIPR manager will:

6.1.2.2.1. Upon receipt of updated PIPR, review for errors. If no errors are noted; maintain drawings in PIPR file and destroy appropriate as-installed interim drawings furnished by the installation team. If errors are detected make appropriate corrections and return drawings to 668 LS for update to master file.

6.1.2.2.2. Verify as-installed PIPRs are annotated for NSA, Contractors, E-I, and unit self-help projects.

6.1.2.3. 668 LS will:

6.1.2.3.1. Maintain a Master Plant In-Place library for mission systems and equipment that are used to accomplish AIA SIGINT Missions and are funded under the CCP at AIA field units.

6.1.2.3.2. Perform annual review of PIPRs reflecting mission systems and equipment that are used to accomplish AIA SIGINT missions and are funded under the CCP at AIA field units.

6.1.2.3.3. PIPR review will include the following:

6.1.2.3.3.1. Establishment of PIPR review timelines.

6.1.2.3.3.2. Coordination of all review actions with responsible units, and document any changes, additions, and deletions to PIPRs.

6.1.2.3.4. File and maintain records review documentation.

6.1.3. **PIPR Distribution.** PIPRs and as-installed drawings are transferred electronically between HQ AIA and operating units via the Engineering Documentation Exchange Network (EDEN) where available. When EDEN is not available, PIPRs maybe distributed via registered mail.

NOTE: Field Operating Units will forward, as-installed PIPRs reflecting CCP funded mission systems and equipment to 668 LS engineering within 10 workdays after receipt. Maintain one copy on site as interim drawings until updates are received.

6.1.4. **PIPR Documentation.**

6.1.4.1. PIPRs are updated through receipt of as-installed drawings from installation projects (contract or E-I), and annotated updates from field operating units. The unit maintenance support will verify drawing accuracy by signing each copy of as-installed drawing provided by the installation team before final updates to the master files can be made. MEAR team projects that require the removal of walls, power panels, and ground grids also require as-installed and PIPR updates. The 668 LS updates, prepares, numbers, and distributes current PIPR drawings from the AIA Master File.

NOTE: As-installed or interim records are those records distributed as part of a FEP/FIS or when requested by field units. Field units must maintain a copy of any as-installed or interim records until final updated copies are received.

6.1.4.2. Contractor, NSA, and AIA as-installed drawings. Field operating units must ensure that the contractor and or installation agency provides two copies of all drawings and related installation documents used for the installation. Any authorized changes, to include cable count sheets, wire lists showing cables, jacks, connectors, terminal blocks, pinning, etcetera, that are required to integrate the new system to existing systems must be included on applicable drawings.

6.1.4.3. 668 LS uses data provided by the installation agency, contractor, and field operating units to update all corresponding PIPRs. The unit maintenance support function should verify accuracy of updated drawings before filing as the current record.

NOTE: Projects will not be closed until PIPRs are updated.

6.1.4.4. Use the following color codes when making updates to drawings:

6.1.4.4.1. YELLOW--to show deleted data.

6.1.4.4.2. RED--to show additions.

6.1.4.4.3. BLUE--to show notes to the draftsmen.

6.1.4.5. 668 LS will:

6.1.4.5.1. Ensure accurate and complete documentation of all responsible installation and construction projects.

6.1.4.5.2. Receive annotated as-installed drawings. Revise master drawings and distribute at least one revised copy to the unit within 60 days of job completion.

6.1.4.5.3. For E-I projects, archive the Mission Facility Project when revised drawings are distributed and all exceptions listed on the AF Form 1261 have been corrected.

6.1.4.5.4. Establish internal procedures to ensure the implementation team chief accurately documents all equipment positions and or facility layouts on as-installed drawings.

6.1.4.6. The Team Chief will:

6.1.4.6.1. When updating PIPRs ensure the following:

6.1.4.6.2. Immediately after project completion verify accuracy of as-installed records with customer, and provide two copies of updated drawings to the receiving unit.

6.2. As Built Drawing Documentation. As-built facility-engineering documents are property of host base civil engineering departments. Construction changes are not allowed to a facility without an engineering study and approval through the host base civil engineering. Current mission facility engineering project documentation can be obtained from 668 LS Engineering for reference or information.

6.2.1. As-built drawings document facility construction floor plans, elevations and or sections that are developed during the construction process performed by the construction agent. During the construction process, all required and approved changes that are not represented on original final engineering documents will be shown on red-line documents by the construction team chief. Redlines will be reviewed by the DER for accuracy and returned to the FEP originator for inclusion in the FEP. As-built drawings will be updated and returned to the unit Directorate Engineering Representative for submittal to host base civil engineering for filing.

6.2.2. **As Built Drawing Review.**

6.2.2.1. AIA field units will:

6.2.2.1.1. Appoint a Designated Engineering Representative in writing.

6.2.2.1.2. Review as-built FEP for accuracy to ensure they reflect current conditions.

6.2.2.1.3. Submit as-built drawings to host base civil engineering.

6.2.2.2. 668 LS will:

6.2.2.2.1. Prepare as-built drawings within 60 days of receipt.

6.2.2.2.2. Provide two copies of as-built drawings to the unit Designated Engineering Representative.

6.2.2.2.3. Review drawings with the Designated Engineering Representative of the unit.

6.2.2.2.4. Ensure drawing acceptance letter is signed while on-site by the Directorate Engineering Representative.

6.2.2.3. Team Chief:

6.2.2.3.1. When updating Facility As-Built Drawing ensure the following:

6.2.2.3.1.1. Immediately, after project completion, verify accuracy of record updates with the customer, and provide two copies of all facility as-built drawings to 668 LS engineering for completion and distribution to the project Directorate Engineering Representative for submittal to the host BCE.

CHAPTER 7

TESTING AND ACCEPTING THE MFP

7.1. General. Project testing and inspection is a joint responsibility of the installation and construction agency, and the customer. For major systems, the Air Force Cryptological Office (AFCO) or other agencies may perform testing and commissioning.

7.2. Acceptance. For site preparation projects, the unit should verify site preparation is complete as described in the FEP/FIS. After the installation, identify and document any minor exceptions using the AF Form 1261, regardless of the installation agency. Units should make every attempt to identify the activity that is responsible for correcting listed exceptions. For contract installations, the agency project manager, who signs the DD Form 250**, Material Inspection and Receiving Report**, releasing a contractor, is responsible for correcting any exception, and may be listed as such.

7.3. Initial Testing. The implementation team and the local unit maintenance support or contracting office representative will jointly perform an initial test to ensure the project was properly completed. During this test:

7.3.1. The team and local maintenance personnel will physically inspect the installation to verify the placement of the equipment, the completeness of the project, the installation of equipment and supporting hardware as specified, and to ensure the installation is in compliance with required safety standards.

7.3.2. Inspect the physical installation to ensure it is completed in according to the FEP/FIS and any approved deviations.

7.3.3. Use 31-10 series AF Standard Installation Practices Technical Orders (SIPTO), and AIA Engineering Installation Standards (EIS) 2-1, as general installation standards for E-I installations.

7.3.4. If engineering errors are identified, the local unit personnel and the installation team will jointly attempt to correct the problem. The team chief must refer problems not locally correctable to 668 LS Project Management.

7.4. Operational Tests: This test ensures the installed equipment is capable of performing its assigned mission. Local unit O&M personnel jointly participate in this test with the installation team participating, as necessary. Operate the equipment under real or simulated operating conditions with adjustments and alignments made as necessary to maintain the equipment within established operating parameters.

7.5. Accepting the Facility. The installing activity and the requesting activity have joint responsibility for completing the AF Form 1261 or equivalent.

7.5.1. 668 LS Quality Assurance and unit maintenance support personnel may conduct joint inspections on any newly installed or relocated equipment or systems in AIA facilities to ensure safety and compliance with established DoD, Air Force, and AIA standards.

NOTE: 668 LS is not responsible for integrated logistics support (ILS) requirements. If ILS requirements are deficient, the unit will accept the installation but should not commission the facility.

CHAPTER 8

LIST OF MATERIAL (LOM) MANAGEMENT

8.1. Purpose. This chapter provides AIA units guidance in the management of LOM assets for Engineering and Installation projects.

8.2. Field Operating Unit Responsibilities. Unit Chief of Logistics will appoint a LOM monitor in writing and forward copy of appointment letter to 668 LS material control. Update appointment letter annually in November and as changes occurs.

8.2.1. LOM Monitor will:

8.2.1.1. Maintain separate LOM folders for each project. Folders should contain all documentation concerning the projects to include project and shipment notification, DD Forms 1149, **Requisition and Invoice/Shipping Document**, receipt notifications, LOM listings, and project termination notices.

8.2.1.2. Receive incoming shipments and provide secure segregated storage for LOM assets. Verify actual property received with shipment notification documents for completeness. Notify the 668 LS material control via message, fax, or email upon receipt and verification of LOM shipment(s).

8.2.1.3. Conduct tracer action for shipments in question.

8.2.1.4. Perform inventory with E&I team leader, prior and after each project is completed and forward the inventory list to 668 LS material control. Upon request from 668 LS material control, conduct inventories of forward supply points and bench stocks.

8.2.1.5. Contact 668 LS material control for disposition instruction of excess LOM material.

8.3. 668 LS Responsibilities.

8.3.1 The 668 LS will:

8.3.1. 1. Establish and maintain folders for all LOM projects. Folders will contain all supporting documentation.

8.3.1.2. Establish records for all LOM assets.

8.3.1.3. Notify unit LOM monitor when shipments are made via message, fax, or E-mail; provide transportation control number (TCN), and identify any special instructions for the shipment (that is, approximate space required for the bulk shipment, special materiel handling equipment requirements).

8.3.1.4. Conduct tracer actions when shipments are lost or have discrepancies.

8.3.1.5. Provide units with a copy of LOM listings.

8.3.1.6. Upon completion, send project termination notices to appropriated unit within 30 days.

8.3.1.7. Provide residue disposition instructions when all projects are completed.

8.3.1.8. Perform or ensure annual inventories are conducted at forward supply points.

CHAPTER 9

SPECIAL EQUIPMENT REQUIREMENTS

9.1. Purpose. M3S/PET mission positions must be installed with a minimum loss of operational time, consistent with economical duplication of equipment. Special equipment requirements (SER) are established to accommodate parallel system operations to reduce or eliminate operational down time.

9.2. Identification. For SER identification and submission, field units, including 668 LS, may submit SER requirements to HQ AIA/LG in writing.

9.2.1. HQ AIA/LGS, upon receipt of the validated requirement letter, determines if the equipment assets are available. If available, LGS establishes a SER POEI in the PET authorizing the equipment.

9.2.2. Units will report any controlled mission equipment shortages to HQ AIA/LGS.

9.2.3. Upon completion of the parallel system installation the SER authorization will be withdrawn and SER equipment disposed of according to HQ AIA/LGS instructions.

CHAPTER 10

RELEASE OF IMPLEMENTATION TEAM

10.1. Releasing the Teams. When the implementation inspection is complete the following guides releasing the implementation team:

10.1.1. If major exceptions are identified, the local unit notifies 668 LS Project Management by message, of the situation and provides recommended actions. The unit also recommends whether the team should remain on site or be released.

10.1.2. The 668 LS will make final determination based on all recommendations.

10.2. Project Work Stoppage. Occasionally, it may be necessary to stop work on a project.

10.2.1. 668 LS Project Management may direct suspension of a 668 LS project for a higher priority project.

10.2.2. Team chiefs may request project suspension when conditions warrant. Send requests to 668 LS Project Management, and identify all factors precluding project completion.

10.2.3. If a work stoppage occurs, the following applies:

10.2.3.1. The team chief annotates and signs all drawings to show the work completed.

10.2.3.2. The team chief will secure the toolbox in accordance with chapter 11 of this instruction.

10.2.3.3. The team chief and local unit must inventory all LOM material and prefabricated items attaching a copy of the inventory to the letter of suspension. The team chief and a representative from the operating unit participating in the inventory must sign the inventory.

10.2.3.4. The local unit repackages and stores all LOM and prefabricated items to prevent pilferage during the suspension period.

10.2.3.5. The local unit must provide protective storage for all accountable equipment and materials. The unit prepares a memorandum signed by the commander or designated representative and the team chief indicating the reason and authority for project work stoppage. Attach all drawings, inventories, and other applicable documents completed as a result of the suspension action to the memorandum. File one copy of the letter with attachments and two copies of the annotated drawings in the FEP/FIS. The team chief retains one copy of the memorandum and any applicable documents supporting transfer of accountability from the team chief to other agencies.

CHAPTER 11

PRE-POSITIONED TOOL BOXES

11.1. General Tools. Once a team departs a location, the custodial responsibility for the pre-positioned tool boxes rest with the unit Chief of Logistics or designated representative. On occasion, unit maintenance personnel may need to borrow a tool from the toolboxes; they may do so. However, the unit must perform and document an inventory when the box is opened and prior to the box being closed and resealed.

11.2. 668 LS Responsibilities.

11.2.1. **Team Chief will:**

11.2.2. Prior to deploying, obtain an AF Form 1297**, Temporary Issue Receipt,** from 668 LS for the key or combination to the toolbox at the TDY location.

11.2.3. Perform a joint inventory with a representative from the unit, and report missing or broken tools to the Chief of Logistics and the 668 LS.

11.2.4. At installation completion, perform a joint inventory with a representative of the unit, lock the toolbox and exchange the key for a hand receipt signed by the Chief of Logistics or designated representative. Leave several serial numbered seals inside the toolbox.

11.3. Field Operating Unit Responsibilities.

11.3.1. **The unit will:**

11.3.1.1. Provide a representative to perform a joint inventory of the toolbox with the team chief.

11.3.1.2. Ensure an inventory is performed each time the toolbox is opened and again before resealing.

11.3.1.3. Accept custodial responsibility for the toolboxes from the departing team chief by exchanging a hand receipt for the tool box combination.

JACK D. WARNER JR., Colonel, USAF
Director of Logistics

GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

As-Built Drawing - Drawings that shows changes to real-property utilities, structures, and facilities. They are signed by the station civil engineer.

As-Installed Drawing - A drawing properly annotated by an installation agency accurately showing a completed installation. As-installed drawings are normally engineering drawings annotated and marked "as-installed."

Communications Terminal - Items of communications equipment and related devices installed in surveillance and warning centers or next to and in direct support of intercept or direction finding positions.

Equipment Installation Standard (EIS) - AIA installation standards that standardize the installation practices and rules necessary to install unique equipment or systems common to most mission operational activities. Follow EIS for unique fabrication and installation activities that are not provided in other Air Force Standard Installation Practices Technical Orders or commercial manuals. When specific installation guidance is not provided, perform installation using best engineering practices.

Facility Engineering Package (FEP) - A fully coordinated engineering package consisting of engineering concept drawings, AF Form 3052, **Construction Cost Estimate**, AF Form 332, **BCE Work Request,** DD Form 1391, **Military Construction Project Data,** AF Form 813, **Request for Environmental Impact Analysis**, and a Project Support Agreement with applicable signatures. The FEP provides construction installation standards, objectives and performance predictions; a detailed list of materiel and hardware, engineering drawings, and a narrative scope of work to complete a facility renovation or construction. Review the FEP with all affected agencies to identify potential problems. Resolve all questions and comments with the project engineer before the construction team arrives.

Facility Installation Scheme (FIS) - A format of an engineering plan providing installation standards, objectives and performance predictions, a detailed list of materiel (both major and minor items of equipment and hardware), engineering drawings, and a narrative explanation of the installation and test guidance. The FIS documents and translates a funded and approved requirement into the engineering, supply, and installation data necessary to establish or change a capability. Review the FIS with all affected agencies to identify potential problems. Resolve all questions and comments with the project engineer before the installation team arrives.

List of Materials (LOM) - A listing of all expendable supplies, including required materials listing (RML), necessary to fulfill a specific project implementation of a Mission Facility Project (MFP).

Major Discrepancy - A deficiency in engineering, installation, or equipment condition preventing the facility or position from meeting the specified operational requirement.

Minor Discrepancy - A deficiency in engineering, installation, or equipment condition not immediately correctable, but does not preclude the facility or position from meeting operational requirements.

Mission Equipment - Equipment including antennas and processing equipment required to accomplish AIA SIGINT missions.

Mission System - Those systems and equipment that are used to accomplish AIA SIGINT Missions and are funded by NSA under the Consolidated Cryptologic Program (CCP).

Maintenance Manpower Management System (M3S) - HQ AIA Maintenance Manpower Management System database that is the authoritative document for all mission-facility actions for Mission Facility Projects.

Plant-in-Place Record (PIPR) - Records and drawings that document current facilities and communications layouts within AIA units. Comparable to CSIR, but has additional required documentation for the AIA environment. The PIPR manager maintains PIPRs at unit level. The 668 LS establishes and maintains a master PIPR file for AIA Mission Systems or facilities.

Position Equipment Table (PET) - A compilation of equipment and supplies required for each mission position by position equipment identification code.

Position Installation Detail (PID) - A PID provides the configuration control for arranging and interconnecting individual equipment of an AIA Master Program position. A PID is prepared for each type of HQ AIA Master Program position listed in the HQ AIA PET and currently programmed in the AIA Master Program Position unless documented as an EIS, maintenance bulletin, technical order, or other formal document.

Pre-positioned Tool Box - Toolbox pre-positioned at AIA field operating units for project installations performed by 668 LS E-I installation teams. The custodial responsibility for the pre-positioned toolbox rests with the unit Chief of Logistics or designated representative. On occasion, unit maintenance personnel may need to borrow a tool from the toolboxes; they may do so. However, the unit must perform an inventory when the box is opened and prior to the box being closed and resealed.

Project Drawing - A typical, plant-in-place engineering drawing produced to support mission facility installations. These drawings include, but are not limited to, antenna field layouts; position layouts; building floor plans; building utilization plans; and detail drawings of antennas, equipment, consoles, overhead ducts, and communications facilities.

Project Folders - Project folders contain all the documents that constitute a formal C4I systems or construction project. Review these project folders periodically and keep them active until all installation exceptions are eliminated. Transfer the project file to the CSIR file after installation certification. Purge information that is not of historical value and maintain according to AFI 37-138, *Records Disposition-Procedures and Responsibilities,* and AFMAN 37-139, *Records Disposition Schedule.*

Required Materials List (RML) - A list of expendable hardware required to install an operations program position or a total specific installation.

Self-Help Projects - A unit can help itself by initiating and managing a project through to completion without directly involving the 668 LS. Self-help installations may save time and money.

Support Requirements - Any support action required to implement a FEP/FIS. Support requirements include actions performed by construction or systems contractor or base civil engineer activities. Support requirements usually include installation and construction actions associated with the military construction program and the O&M program, and are identified in the PSA. Support requirement verification is one of the most important milestones in a project. Conduct an itemized verification of every support requirement item listed in the PSA (attachment 2 and 3). Planners must personally verify the status with the customer and civil engineering project monitor, and should physically visit the job site with the project monitor, to ensure completion of all support requirements.

Telecommunications Installation Details (TIDs) - Documents prepared for each type communications installation showing installation details. Project Support Agreement (PSA)--The PSA formally documents support requirements and approval for required support. Make sure all PSAs document the equipment to be installed, sites or locations agreed on, supporting construction services required; and operational, technical, or other constraints affecting the installation. The PSA for most installations may be concurred on site, although this may be a joint decision between the implementing activity and Chief of Logistics. The appropriate authority must review and endorse the PSA.

Work Done by Others - The BCE or contractor may perform other types of work not directly related to the FEP/FIS, but may occur simultaneously with FEP/FIS installation. Work Done by Others may be real property maintenance, repair, or construction that does not fit the work category described above. Common examples include burying communications cables, work on non-real property equipment (that is, equipment listed on the Equipment Authorization Inventory Data account, or installing raised flooring or air conditioning for computer equipment).

Work Stoppage - If for some reason the installation team must stop work for some reason and depart, the installation team chief inventories, recreates, and secures all uninstalled project materials. The team chief and the user signs appropriate documents to show custodianship, project status, equipment, and project material responsibility, and the projected date when installation will restart.

ABBREVIATIONS

CCP--Consolidated Cryptologic Program

DER--Designated Engineer Representative

EIS--Equipment Installation Standard

FIS--Facility Installation Scheme

ILS--Integrate Logistics Support

LOM--List of Materials formerly Bill of Materials (BOM)

M3S/PET--Maintenance Manpower Management System/Posiiton Equipment Table

MEAR--Mobile Engineering, Alteration and Repair

MFP--Mission-Facility Project

MP--Master Program

O&M--Operation and Maintenance

OI--Operating Instruction

OPR--Office of Primary Responsibility

PET--Position Equipment Table

PID--Position Installation Detail

PIPR--Plant In-Place Records

POEI--Position Equipment Identifier

RML--Required Materials List

SER--Special Equipment Requirements

SIGINT--Signal Intelligence

SIPTO--Standard Installation Practices Technical Order

TCTO--Time Compliance Technical Order

PROJECT SUPPORT AGREEMENT (PSA) PACKAGE

MEMORANDUM FOR *(Appropriate Office, example: 303 IS/CC)*

FROM: (*The servicing E-I/MEAR activity, example: 668 LS/ILES/ILEE/ILIP*)

SUBJECT: Project Support Agreement (PSA) for (*Project title, location and project number***)**

A2.1. Program Information:

A2.1.1. Provide the purpose of the programmed facility or equipment. *Insert summary of applicable part of programming document (ensure information provided is at the unclassified level). State the type of requirement, that is, an upward generated, NSA directed, etcetera).*

A2.1.2. Authority for the site survey is *(insert number from tasking letter or message of requirement) (insert appropriate date of document*).

A2.1.3. USAF Precedence Rating: (*Use only if upward generated requirement*).

A2.1.4. Host Nation Approval and Connection Approval: (*if applicable*)

A2.2. Siting and Project Installation Data: Attachment 1 of the PSA contains the siting and project installation data.

A2.3. Customer Support Requirements: Attachment 2 of the PSA identifies the customer support requirements

A2.4. Civil Engineering Support Requirements: Attachment 3 of the PSA identifies host base civil engineering activity support requirements.

A2.5. Base Support Requirements:

A2.5.1. HAZMAT: Identify and manage materials containing asbestos, polychlorinated bi-phenals (PCB)s, lead acid batteries, lead based paints, creosote treated telephone poles, hazardous material storage sites, and hazardous wastes storage sites as defined in OSHA 1926.58 Toxic Substance Control Act for PCBs-40 CFR 761; the Clean Water and Clean Air Acts, CFR-40 parts 260 through 270; OSHA 1910.1200, Resources Conservation and Recovery Act; and the Federal Facility Compliance Act.

A2.5.2. The host base, project site owner, or responsible agency makes sure the proposed work site undergoes an environmental assessment with special attention to asbestos and lead containing materials, buried or stored hazardous wastes, Complete the environmental assessment with data available before any type of removal, installation, and construction, or equipment upgrades proceed. Provide project engineers or project manager's data on any and all hazardous materials or hazardous wastes though this PSA.

A2.5.3. The customer gets appropriate permits for entering confined spaces and controlled areas for the team, as well as, definition of the type or condition of the confined space.

A2.6. Implementation Schedule Dates:

A2.6.1. The anticipated allied support completion (ASC) date for all support covered in this PSA is (*enter date*).

A2.6.2. The anticipated team start date for project installation is (*enter date*).

A2.6.3. If the projected ASC date is changed, the customer must notify the 668 LS project manager (info copy to 668 LS/*ILE as required*), and implementation milestones will be adjusted to reflect the new ASC date.

A2.7. Funding: (*Identify applicable funding source to accomplish requirements identified in this PSA if required, if not applicable say so*)

A2.8. PSA Processing: Upon signature of this PSA, the customer and base agencies concurs with and agrees to the following project requirements:

A2.8.1. Equipment or facility siting (attachment 1).

A2.8.2. All supporting requirements, services, and ASC dates (attachment 2 and 3).

A2.8.3. Provide a statement whether there are any contractual obligations that may involve penalties, associated with the anticipated implementation schedule dates for this project.
A2.8.4. EMSEC requirements according to AFI 33-203, *The Air Force Emission Security Program*, and other current Air Force guidance.

A2.8.5. Accomplish an Asbestos/HAZMAT certification according to AFI 32-1052, *Facility Asbestos Management*, if applicable.

A2.8.6. Address all correspondence concerning this PSA to 668 LS/*ILES or ILEE* and provide information copies to 668 LS ILIP.

Required Signatures:

Lead Engineer or Technician
Requesting Agency (Customer)
Host Base Civil Engineering Representative (*if applicable*)
Implementing Agency Project Manager (*upon request*)
Other addresses deemed necessary by project management

Provide courtesy copies to:

Requesting Agency (*Customer*)
Implementing Agency Project Manager
Applicable Intel Group and Wing (*if applicable*)
Host Base Civil Engineering Representative (*if applicable*)
Other addressees as appropriate

4 Attachments:

1. Siting and Project Installation Data
2. Customer Support Requirements
3. Civil Engineering Support Requirements
4. PSA drawing and sketches (*If applicable*)

Figure A2.1: Sample of Attachment 1 of PSA Package.

SITING AND PROJECT IMPLEMENTATION DATA

Attachment 1 of PSA Package

Project: (*insert applicable number*)

Title: (*insert applicable information*)

Location: (*insert applicable information)*

1. Coordination Information: (*Use one of the paragraphs below, which are appropriate for the type of survey accomplished.)*

1.1. Information for this PSA was obtained during an engineering site survey conducted on (*insert date*), by (*survey personnel, squadron, office symbol, and DSN number*). The following personnel were contacted:

OR

1.2. Information for this PSA was obtained by (*survey personnel, squadron, office symbol, and DSN number*) through a desktop survey of available Plant-In-Place Records (PIPR) and other technical data. Siting information contained here in was coordinated by telephone with personnel listed below:

NAME ORGANIZATION DSN

2. Siting Data: (*Identify specific details on "what" and "where" to install.*)

2.1. Specific sites or locations to be reserved:

Describe exact equipment space, facilities, etcetera, to be reserved and make reference to attached drawings, by number and date, which shows required space. Where possible, identify floor space, equipment racks, shelf space, cable ports, antenna positions, cable ducts, cable pair, circuit breakers, etcetera.

2.2. Restrictions: (*List any known restrictions on future expansion or construction in the vicinity*). *If applicable, include the following*: Any future construction or buildup in the area of this siting must be coordinated with (*organization and office symbol of installation activity*).

3. Other (*List here)*

4. Related Factors:

4.1. No change to the existing construction design criteria that affects this installation will be approved without concurrence from 668 LS Project Management and Engineering.

4.2. Relationship to other supporting or related projects: (*included any related work that may affect this siting and or installation if applicable, if not, say so.)*

4.3. Environmental impact will be determined according to AFI 32-7061, *The Environmental Impact Analysis*, and local base policy.

4.4. EMSEC considerations: *(If EMSEC considerations are involved identify the requirements, or request availability of the EMSEC evaluation officer, if none, say so)*

5. PSA Drawings: See PSA attachment 4 *(if applicable, if none, say so).*

Figure A2.2: Sample of Attachment 2 of PSA Package.

CUSTOMER SUPPORT REQUIREMENTS

Attachment 2 of PSA Package

Project: (*Insert Applicable Information*)

Title: *(Insert Applicable Information)*

Location: *(Insert Applicable Information)*

1. Circuit Requirements:

(Specify quantity, minimum technical characteristics, and termination points. Identify specific circuit segments that will be leased or government-owned, if applicable. Consider the following items in developing circuit requirements: 2-wire or 4-wire, maximum allowable loop resistance if metallic circuits are required for remote transmitter keying or channeling control, allowable signal loss, frequency response, data speed (for example 9600 BPS).

2. (*Enter appropriate organization*) will provide the following equipment and material, and serviceability inspection certificates for each equipment item. Furnished equipment and material will be installed by (*enter appropriate organization*).

NOTE: *If customer is furnishing the above, identify here or attach an equipment/material listing. If none say so.*

3. EMSEC requirements: (*As applicable in accordance with current AF EMSEC guidance. Submit, under separate cover, any classified requirements involved in accordance with applicable AFI.)*

4. Cable Work: *(Use appropriate statements from below, if none, say so)*

4.1. Transfer jumpers as required during project installation

4.2. Remove all affected drop wire

4.3. Reserve Cable (*as applicable*), Pairs *(as applicable*)

4.4. The local unit responsible for keeping base cable records will survey and stake any buried communications cables where trenching or excavation is proposed.

5. Special Equipment: (*if applicable, if none say so).*

(*When special equipment peculiar to the implementation testing phase is required to be supplied by the customer, the engineer will identify the equipment in this paragraph and reference any additional agreements made with the customer during the site survey. A copy of this section identifying special equipment requirements will be furnished to 668 LS/IPM to evaluate the need for special equipment training).*

6. Down Time: *(specify here, if none say so)*

(The engineer will consider the impact that implementation of proposed project action may have upon the customers' operations and facilities. Any probability that proposed installation procedure may interrupt or reduce operational capability or use of existing facilities will be discussed with the customer. Estimated length of down time and requirements for the customer to provide alternate or backup equipment, and to schedule down time will be documented here in the PSA).

7. The customer POC at *(enter office symbol)* will assist the engineer/team chief in obtaining and coordinating a Base Civil Engineering Clearance Request for any work (contract, in-house, or other agency) that involves drilling/cutting holes into or through walls, ceilings, or floors to address any possible environmental or safety hazards to installation personnel.

7.1. The unit requesting the proposed action will request BCE clearance prior to the start of work according to local BCE policy to ensure no environmental or safety hazards exists. If delays in the installation is encountered or the conditions at the job site change, the BCE clearance may have to be revalidated and approved.

7.2. The customer must be aware that processing an AF Form 103 may generate the need for an AF Form 813 depending upon host base policy. Prior planning may be required.

8. Crypto Equipment Installation: *(delete this section if not applicable, if applicable, PSAs for crypto equipment projects must include the following:).*

8.1. The requiring unit responsible for maintenance of crypto equipment to be installed in accordance with this project may be tasked to provide crypto maintenance personnel certified in accordance with applicable AFI's to accomplish operational checks, perform required maintenance, and certify the completed facility after installation by the E-I team. Tasking for this support, if required, must be made by the on-site E-I team chief, and is contingent upon non-availability of certified E&I team technicians.

8.2. Applicable COMSEC Items:

(List only applicable items from the following and advise the customer that during the pre-installation survey, the team chief will verify that those items required to effect the operational test have been received by the COMSEC custodian or maintenance supply facility).

8.2.1. COMSEC Equipment

8.2.2. COMSEC ancillary devices *(permuter boards, card extractors, etcetera)*

8.2.3. Spare parts and circuit board kits *(classified and unclassified)*

8.2.4. Crypto Keys

9. The Customer must obtain disposition instructions for all equipment/material items to be removed. This must be provided to the installation team prior to completion of the removal.

Figure A2.3: Sample of Attachment 3 of PSA Package.

CIVIL ENGINEERING SUPPORT REQUIREMENTS

Attachment 3 of PSA Package

Project: (*Insert applicable number)*

Title: *(Insert applicable information)*

Location: *(Insert applicable information)*

NOTE: *Supporting Construction Requirements. This attachment outlines the basic requirement for which host concurrence is needed, and as such, must be very clear. It includes all changes to existing real property required in preparation for programmed equipment installation. If multiple locations are involved, additional subparagraphs may be added, list the same type of information for each location, or special individual attachments to the PSA can be used. List only the following items that apply. If no supporting construction is required, say so. Where practical and agreed to by site personnel, existing facilities will be designated to be reserved for support of the project installation.*

1. Site Work and Exterior Utilities: *(if none say so)*

1.1. Clearing and grubbing

1.2. Drainage and landscaping

1.3. Power generation and distribution

1.4. Other (any requirements not identified above)

2. Buildings. *Towers and Other Structures*: *Existing, addition expansion, or new construction required. (Break this out into three categories as shown.*)

2.1. Civil-architectural requirements: *(if none say so)*

2.1.1. Type of construction

2.1.2. Interior utilities required

2.1.3. Dimensions (*include minimum clear heights required*)

2.1.4. Walls, floors, ceilings, doors, windows, criteria, etcetera

2.1.5. Acoustic requirements.

2.1.6. Cable port locations, floor loading, special equipment openings (*entry or removal*), etcetera.

2.1.7. Physical Security requirements: *Identify applicable regulations, including paragraph number. Address any requirements for electronic security, the level of security required, and the level or category of the resource requiring protection.*

2.1.8. EMSEC requirements: *EMSEC requirements as applicable according to current AF EMSEC guidance. Submit under separate cover any classified requirements according to AFI 33-203 (delete if none).*

2.2. Mechanical Requirements: *(List only those that apply)*

2.2.1. Design criteria for environmental control: *(delete if none)*

2.2.1.1. Interior: *(applicable maximum and minimum) operating temperature and humidity with allowable tolerances and gradients (also list Air Force Technical Order (AFTO) equipment limitation where appropriate).*

2.2.1.2. Exterior – critical or non-critical system:

2.2.2. Heat emission (BTU per hour): *Give the BTU per hour heat emission for each pieces of equipment which will be installed.*

2.2.3. Ventilation requirements *(if existing is adequate, so state).*

2.2.4. Fire protection systems shall be according to the Engineering Technical Letter (ETL) titled Fire Protection Criteria For Facilities Housing Electronic Equipment. The Air Force policy on halon (*ref ETL 93-5*) must be followed.

2.2.5. Special considerations: *(such as air filtration, safety equipment, etcetera).*

2.3. Electrical Requirements: *(list only those that apply)*

2.3.1. Power.

(State requirements, in columnar form, for voltage, frequency, phase, number of wires, and total KVA or KW for electronic equipment, for primary AC, backup AC, and miscellaneous AC (for example, UPS) or for primary and backup DC. Specify that voltage tolerances must be within +/-5% and frequency tolerances must be within +/-1/2 cycle for 50/60 HZ. Specify that overseas bases must confirm this in writing).

2.3.2. Technical Power Panels:

(Specify quantity of filtered and unfiltered AC power panels to be provided or reserved. Include specific information on circuit breakers to be provided or reserved (quantity of each type, voltage, current rating, number of poles and use.) Consider EMSEC requirements, where applicable).

2.3.3. Non-technical Power Panels:

(*Specify quantity of unfiltered AC power panels to be provided or reserved. Include specific information on circuit breakers to be provided or reserved (quantity of each type, voltage, current rating, number of poles and use).*

2.3.4. Lighting and receptacle requirements

2.3.5. Grounding requirements:

(Grounding requirements must be according to the latest issue of MIL-STD-188-124, MIL-HDBK419, AFTO 31-10-24, NEC, and any applicable guidance provided to the engineering areas by HQ AIA. ***NOTE:*** *In case of conflict the MIL-STD-188-124 is the governing document for DoD facilities installations. Engineer must identify the specific type of grounding system to be provided with reference to the appropriate paragraph of each document that is applicable to the project requirements. When possible, provide a sketch or drawing of the grounding system desired).*

2.3.6. Fire detection:

3. Special Services.

Identify special items of support not covered elsewhere. Provide as much information as possible. Typical items are:

3.1. Crane: *(Provide load radii, height to be lifted, weight to be lifted, number of days required base provided or rental).*

3.2. Trenching and back filling, restoration, compacting, landscaping and re-sodding:

(*Ensure that base civil engineer is given the opportunity to decide on the method (trenching, boring, jacking, tunneling, etcetera) of crossing pavements (roads, walkways, airfields, etcetera) for underground utility installations. Trenching pavements must be a last resort and must be coordinated with the BCE).*

3.3. Shop services: *(welding, machine, carpentry, painting, etcetera) for known requirements.*

4. Restore work location: *(including patching, painting, replacing floor, wall, or ceiling tile, etcetera*) to its original conditions.

5. Upon receipt and subsequent approval of an AF Form 103, stake all buried utility lines which are the responsibility of base civil engineering and which are located where trenching or excavation is proposed.

6. Review drawings and specifications at the 35%, 65% and 95% design stages for technical adequacy and forward to 668 LS/ENG.

7. Early occupancy of new or modified structures:

(*Document early access requirements needed for project installation and testing).*

Figure A2.4: Sample of Attachment 4 of PSA Package.

PSA DRAWING LIST

Attachment 4 of PSA Package

Project: *(Insert Applicable Information)*

Title: *(Insert Applicable Information)*

Location: *(Insert Applicable Information)*

1. Drawings:

NUMBER	SHT	DATE/ SHORT TITLE
Example:		
9903-07-030	1 of 2	30 Jan 95 Position Layout, Bldg 1500, Rm 167

2. Sketches:

NUMBER	DATE/ SHORT TITLE

NOTE: The only drawings or sketches you would normally list and include in the PSA are those required to clarify support requirements.

SAMPLE AF FORM 103

Figure A3.1. Sample AF Form 103.

BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST
(See Instructions on Reverse)

DATE PREPARED

1. Clearance is requested to proceed with work at **INDICATE LOCATION WORK IS TO BE PERFORMED**

on Work Order No. _____ , Contract No. _____ , involving excavation or utility disturbance per attached sketch. This area ☐ has ☐ has not been staked or clearly marked.

2. TYPE OF FACILITY/WORK INVOLVED

☐	A. PAVEMENTS	☐	D. FIRE DETECTION & PROTECTION SYSTEMS				☐	G. AIRCRAFT OR VEHICULAR TRAFFIC FLOW
☐	B. DRAINAGE SYSTEMS	☐	E. UTILITY	☐	OVERHEAD	☐ UNDERGROUND	☐	H. SECURITY
☐	C. RAILROAD TRACKS	☐	F. COMM	☐	OVERHEAD	☐ UNDERGROUND	☐	I. OTHER **ENVIRONMENTAL**

3. DATE CLEARANCE REQUIRED

4. DATE OF CLEARANCE

5. SIGNATURE OF REQUESTING OFFICIAL

6. TELEPHONE NO.

7. ORGANIZATION

ORGANIZATION		REMARKS *(Use Reverse for additional comments)*	REVIEWER'S NAME AND INITIALS
8. BASE CIVIL ENGINEERING	A. ELECTRICAL DISTRIBUTION		
	B. STEAM DISTRIBUTION		
	C. WATER DISTRIBUTION		
	D. POL DISTRIBUTION		
	E. SEWER DISTRIBUTION		
	F. ENVIRONMENTAL	**USE THIS FORM TO DETERMINE IF THERE ARE ANY ENVIRONMENTAL CONCERNS**	
	G. PAVEMENTS/ GROUNDS		
	H. FIRE PROTECTION		
	I. ZONE _____		
	J. OTHER *(Specify)*		
9. SECURITY POLICE			
10. SAFETY			
11. COMMUNICATIONS			
12. BASE OPERATIONS			
13. CABLE TV			
14. COMMERCIAL UTILITY COMPANY ☐ TELEPHONE ☐ GAS ☐ ELECTRIC			

15. OTHER *(Specify)* _____

16. REQUESTED CLEARANCE ☐ APPROVED ☐ DISAPPROVED

17. TYPED NAME AND SIGNATURE OF APPROVING OFFICER *(Chief of Operations Flight or Chief of Engineering Flight)*

17a. DATE SIGNED

AF FORM 103, AUG 94 *(EF-V2)* *(PerFORM PRO)* PREVIOUS EDITIONS ARE OBSOLETE.

Sample AF Form 1146

Figure A4.1. Sample AF Form 1146.

ENGINEERING CHANGE

TO: *(Address of Engineering Activity)*	FROM: *(Address of Originating Activity)*	1. ECR/A NO: ISSUED FROM ENGINEERING
SEND REQUEST TO 668LS ENG/ENS	TEAM CHIEF OR CUSTOMER	2. STATUS ☐ EMERGENCY ☐ ROUTINE

3. ORIGINATOR

TYPED NAME: NAME OF REQUESTER	SIGNATURE:	PHONE NO:	DATE:

4. INSTALLATION CHANGE DESCRIPTION

AFFECTED DOCUMENTS: AFFECTED PART OF FEP/FIS (IE.. TI)	NUMBER: FEP/FIS NUMBER	STATUS: EXAMPLE: (IN WORK)	DATE:

5. REASON FOR CHANGE *(Attach additional sheet, if necessary.)*

(REQUESTER)

PROVIDE YOUR REASON FOR REQUESTING THIS CHANGE, AND EXACTLY WHAT PART OF THE FIS/FEP DO YOU WISH TO CHANGE.

EXAMPLE: (TASK INSTRUCTION 3, STATES TO INSTALL 3 EMCOR RACKS IN ROOM 5, OF BLDG 20. THERE IS NOT ENOUGH FLOOR SPACE IN ROOM 5 TO ACCOMMODATE THE 3 RACKS).

NOTE: ENSURE YOUR EXPLANATION OF THE PROBLEM IS CLEAR AND IN DETAIL SO THAT THE ENGINEER/TECHNICAN CAN UNDERSTAND THE PROBLEM

6. NATURE OF CHANGE *(Attach additional sheet, if necessary.)*

PROVIDE YOUR RECOMMENDED SOLUTION TO THE PROBLEM YOU IDENTIFIED IN BLOCK 5.

EXAMPLE RELOCATE THE 3 EMCOR RACKS TO ROOM 4 OF BLDG 20. ROOM 4, HAS ADAQUATE SPACE, AND LOCATING THE RACKS IN ROOM 4 WILL NOT REQUIRE ANY ADDITIONAL MATERIAL.

NOTE: BESURE AND INCLUDE IF ANY ADDITIONAL MATERIAL WILL BE REQUIRED IN YOUR SUGGESTED CHANGE. IF NO ADDITIONAL MATERIAL IS REQUIRED SAY SO, IF ADDITIONAL MATERIAL IS REQUIRED IDENTIFY TYPE AND QUANTITY OF MATERIAL REQUIRED. THIS INFORMATION MAY HAVE AN IMPACT TO APPROVAL OF YOUR REQUESTED CHANGE

7. ENGINEERING CHANGE

DATE:	ORGANIZATION: 668 LS/ENS OR ENG	ACTION: ☐ APPROVED ☐ PARTIALLY APPROVED ☐ DISAPPROVED	
TYPED NAME: NAME OF APPROVING OFFICIAL	SIGNATURE:	PHONE NO:	DATE:

COMMENTS:

IF ENGINEER/TECHNICIAN APPROVES THE REQUEST AS WRITTEN SAY SO. IF ADDITIONAL INSTRUCTIONS ARE NECESSARY TO CLARIFY HOW THIS CHANGE SHOULD BE ACCOMPLISHED, THE ENGINER APPROVING THE CHANGE WILL PROVIDE THAT INFORMATION HERE.

EXAMPLE RECOMMENDED CHANGE IS APPROVED AS FOLLOWS: CHANGE TASK INSTRUCTION 3 TO READ; INSTALL 3 EMCOR RACKS IN ROOM 4 OF BLDG OF BLDG 20.

OR

(PARTIAL APPROVAL) AGREE WITH PART 5 OF THIS ECRA, HOWEVER, CHANGE TASK INSTRUCTION 3 TO READ; INSTALL 4 EMCOR RACKS IN ROOM 7 OF BLDG 20. LOM # 0192929E WILL BE ISSUED TO PROVIDE ADDITION MATERIAL TO IMPLEMENT THIS CHANGE.

AF FORM 1146, SEP 95 *(EF-V1)* *(PerFORM PRO)* PREVIOUS EDITIONS ARE

FACILITY INSTALLATION SCHEME CHECKLIST

REQUIREMENT ID NUMBER:	DATE INITIATED:
ENGINEER:	DATE COMPLETED:

This checklist is to be used for documenting Installation Scheme reviews and coordination. Check appropriate items or enter N/A

COORDINATION.

TECHNICIAN		
ENGINEER		
ENS CHIEF		
QA		

I. GENERAL.

	Is the overall classification on all pages of the FIS?
	Is the section chief signature block applied?
	Are sections not applicable indicated "NA" in the Table of Contents?
	If special safety training is required is it indicated?
	Are instructions for updating "AS-INSTALLED" drawings and Project Completion documentation included?

II. REFERENCES.

	Are all applicable references current and marked?

III. DRAWING LIST.

	Are applicable Project drawings referenced?
	Are applicable E-IS drawings referenced?
	Are applicable sketches referenced?

IV: INTERPOSITION/TIME/RF DETAILS AND DISTRIBUTION.

	Are the countsheets contained?
	Do the listed countsheet numbers match the countsheets included?
	Are instructions given for specific action symbols?
	Are countsheets readable including any specific action symbols?

V. INSTALLATION INSTRUCTIONS.

	Is a complete task list of the work to be done provided?
	Are tasks to be completed identified in a sequential order?
	Have instructions been checked for continuity of thought and grammatical errors? Does technical interpretation of instructions keep misunderstandings to a minimum?
	Are applicable labeling and testing parameters provided, if applicable?

VI. MATERIAL LIST.

	Are all LOMs and FABs listed in this section?
	Are quantities issued enough to complete the project?
	Are letter LOMs identified by the symbol (ltr) after the LOM number?
	Are all LOMs and FABs stamped with the appropriate classification?

ATTACHMENTS.

	Is applicable PSA attached?
	Are applicable Commercial Manuals or Technical Data provided?
	Are applicable Project drawings referenced and provided?
	Is the classification of the drawing included?
	Are all drawings signed?